



The chicken egg tumor model provides an attractive system for evaluating anticancer drugs

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Abstract

Among various tumor models, the chicken egg tumor model provides an attractive system for tumor characterization as well as for characterization of drugs and nanoparticles targeting the tumor. Xenograft tumors can be grown rapidly on a highly vascularized structure known as the chorioallantoic membrane (CAM). In this poster, we describe a method for growing tumors on the CAM membrane. Freshly fertilized chicken eggs are incubated in the rotary humidified incubator. On day 10 of the embryo development, the CAM is detached from the inner eggshell, a window is made in the shell to expose the CAM, a Teflon ring is placed above the blood vessel, and cancer cells are grafted and placed inside the ring. Three days post inoculation, solid tumors are ~5mm in diameter and can easily be observed through the shell window. We have used green fluorescent ovarian cancer cells to follow tumor growth. H&E staining of the tumor established by transplanting human ovarian cancer cells showed that the tumor established in the chicken egg closely resembles tumors from ovarian cancer patients. Intravenous injection of doxorubicin led to a dramatic inhibition of tumor growth without affecting egg overall survival, as organs obtained after the doxorubicin treatment exhibited normal appearance. Our study shows that the CAM assay is a promising model to evaluate tumor targeting and bio-distribution of nanoparticles.

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